

Listing of Claims:

Claims 1-20 (Canceled).

21. (New) A UWB short-range radar comprising:

a transmitting unit which emits a short pulse wave which satisfies a predetermined spectrum mask from an antenna into space;

5 a receiving unit which receives a reflected wave produced by an object existing in space of the short pulse wave emitted by the transmitting unit; and

a signal processing unit which performs an analyzing process for the object based on an output signal from the receiving unit;

10 wherein the transmitting unit comprises:

a pulse generator which outputs pulse signals each having a predetermined width at a predetermined frequency; and

a burst oscillator which receives the pulse signal output from the pulse generator and performs an oscillation
15 operation for a time corresponding to the width of the pulse signal to output a short pulse signal serving as the short pulse wave without causing carrier leakage;

wherein a width and a cycle of the pulse signal output from the pulse generator and an oscillation frequency of the short
20 pulse signal output from the burst oscillator are set such that almost an entire main lobe of a spectrum of the short pulse wave

emitted from the antenna into space falls within a range of 24.0
to 29.0 GHz in the predetermined spectrum mask, and such that a
radiation power density to an RR radiowave emission prohibited
25 band held by the predetermined spectrum mask is lower than a peak
radiation power density of the main lobe by not less than 20 dB;
and

wherein the burst oscillator comprises:

an oscillation unit comprising a signal inverter and a
30 feedback circuit which delays an output signal from the signal
inverter to feed back to an input terminal, the oscillation unit
performing oscillation at a frequency determined by input/output
response time of the signal inverter and delay time of the
feedback circuit; and

35 a switch circuit which sets the oscillation unit in an
oscillation state only in a period in which the pulse signal
output from the pulse generator is received.

22. (New) A UWB short-range radar comprising:

a transmitting unit which emits a short pulse wave which
satisfies a predetermined spectrum mask from an antenna into
space;

5 a receiving unit which receives a reflected wave produced by
an object existing in space of the short pulse wave emitted by
the transmitting unit; and

a signal processing unit which performs an analyzing process
for the object based on an output signal from the receiving unit;

10 wherein the transmitting unit comprises:

 a pulse generator which outputs pulse signals each
having a predetermined width at a predetermined frequency; and

 a burst oscillator which receives the pulse signal
output from the pulse generator and performs an oscillation
15 operation for a time corresponding to the width of the pulse
signal to output a short pulse signal serving as the short pulse
wave without causing carrier leakage;

 wherein a width and a cycle of the pulse signal output from
the pulse generator and an oscillation frequency of the short
20 pulse signal output from the burst oscillator are set such that
almost an entire main lobe of a spectrum of the short pulse wave
emitted from the antenna into space falls within a range of 24.0
to 29.0 GHz in the predetermined spectrum mask, and such that a
radiation power density to an RR radiowave emission prohibited
25 band held by the predetermined spectrum mask is lower than a peak
radiation power density of the main lobe by not less than 20 dB;

 wherein both ends of the main lobe of the spectrum of the
short pulse wave output from the burst oscillator fall within a
range of 24.0 to 29.0 GHz in the predetermined spectrum mask; and

30 wherein the burst oscillator comprises:

an oscillation unit comprising a signal inverter and a feedback circuit which delays an output signal from the signal inverter to feed back to an input terminal, the oscillation unit performing oscillation at a frequency determined by input/output response time of the signal inverter and delay time of the feedback circuit; and

a switch circuit which sets the oscillation unit in an oscillation state only in a period in which the pulse signal output from the pulse generator is received.

23. (New) A UWB short-range radar comprising:

a transmitting unit which emits a short pulse wave which satisfies a predetermined spectrum mask from an antenna into space;

a receiving unit which receives a reflected wave produced by an object existing in space of the short pulse wave emitted by the transmitting unit; and

a signal processing unit which performs an analyzing process for the object based on an output signal from the receiving unit; wherein the transmitting unit comprises:

a pulse generator which outputs pulse signals each having a predetermined width at a predetermined frequency; and

a burst oscillator which receives the pulse signal output from the pulse generator and performs an oscillation

operation for a time corresponding to the width of the pulse signal to output a short pulse signal serving as the short pulse wave without causing carrier leakage;

20 wherein a width and a cycle of the pulse signal output from the pulse generator and an oscillation frequency of the short pulse signal output from the burst oscillator are set such that almost an entire main lobe of a spectrum of the short pulse wave emitted from the antenna into space falls within a range of 24.0 to 29.0 GHz in the predetermined spectrum mask, and such that a
25 radiation power density to an RR radiowave emission prohibited band held by the predetermined spectrum mask is lower than a peak radiation power density of the main lobe by not less than 20 dB; and

 wherein the burst oscillator comprising:

30 an oscillation unit comprising an amplifier, a resonator connected to an input unit or an output unit of the amplifier, and a feedback circuit which performs positive feedback from an output side of the amplifier to an input side of the amplifier, the oscillation unit performing oscillation at a
35 frequency determined by the resonator; and

 a switch circuit which sets the oscillation unit in an oscillation state only in a period in which the pulse signal output from the pulse generator is received.

24. (New) A UWB short-range radar comprising:

a transmitting unit which emits a short pulse wave which satisfies a predetermined spectrum mask from an antenna into space;

5 a receiving unit which receives a reflected wave produced by an object existing in space of the short pulse wave emitted by the transmitting unit; and

a signal processing unit which performs an analyzing process for the object based on an output signal from the receiving unit;

10 wherein the transmitting unit comprises:

a pulse generator which outputs pulse signals each having a predetermined width at a predetermined frequency; and

a burst oscillator which receives the pulse signal output from the pulse generator and performs an oscillation
15 operation for a time corresponding to the width of the pulse signal to output a short pulse signal serving as the short pulse wave without causing carrier leakage;

wherein a width and a cycle of the pulse signal output from the pulse generator and an oscillation frequency of the short
20 pulse signal output from the burst oscillator are set such that almost an entire main lobe of a spectrum of the short pulse wave emitted from the antenna into space falls within a range of 24.0 to 29.0 GHz in the predetermined spectrum mask, and such that a radiation power density to an RR radiowave emission prohibited

25 band held by the predetermined spectrum mask is lower than a peak
radiation power density of the main lobe by not less than 20 dB;

wherein both ends of the main lobe of the spectrum of the
short pulse wave output from the burst oscillator falling within
a range of 24.0 to 29.0 GHz in the predetermined spectrum mask;

30 and

wherein the burst oscillator comprises:

an oscillation unit comprising an amplifier, a
resonator connected to an input unit or an output unit of the
amplifier, and a feedback circuit which performs positive

35 feedback from an output side of the amplifier to an input side of
the amplifier, the oscillation unit performing oscillation at a
frequency determined by the resonator; and

a switch circuit which sets the oscillation unit in an
oscillation state only in a period in which the pulse signal

40 output from the pulse generator is received.

25. (New) The UWB short-range radar according to claim 21,
wherein the transmitting unit is provided with a filter which
suppresses a component having a frequency ranging from 23.6 to
24.0 GHz of a frequency component included in the short pulse
5 wave output from the burst oscillator.

26. (New) The UWB short-range radar according to claim 22,
wherein the transmitting unit is provided with a filter which
suppresses a component having a frequency ranging from 23.6 to
24.0 GHz of a frequency component included in the short pulse
5 wave output from the burst oscillator.

27. (New) The UWB short-range radar according to claim 23,
wherein the transmitting unit is provided with a filter which
suppresses a component having a frequency ranging from 23.6 to
24.0 GHz of a frequency component included in the short pulse
5 wave output from the burst oscillator.

28. (New) The UWB short-range radar according to claim 24,
wherein the transmitting unit is provided with a filter which
suppresses a component having a frequency ranging from 23.6 to
24.0 GHz of a frequency component included in the short pulse
5 wave output from the burst oscillator.

29. (New) The UWB short-range radar according to claim 21,
wherein the antenna of the transmitting unit comprises an antenna
element surrounded by a cavity, and a resonant frequency of the
cavity is caused to fall within a range of 23.6 to 24.0 GHz to
10 reduce gain in the band.

30. (New) The UWB short-range radar according to claim 22,
wherein the antenna of the transmitting unit comprises an antenna
element surrounded by a cavity, and a resonant frequency of the
cavity is caused to fall within a range of 23.6 to 24.0 GHz to
5 reduce gain in the band.

31. (New) The UWB short-range radar according to claim 23,
wherein the antenna of the transmitting unit comprises an antenna
element surrounded by a cavity, and a resonant frequency of the
cavity is caused to fall within a range of 23.6 to 24.0 GHz to
5 reduce gain in the band.

32. (New) The UWB short-range radar according to claim 24,
wherein the antenna of the transmitting unit comprises an antenna
element surrounded by a cavity, and a resonant frequency of the
cavity is caused to fall within a range of 23.6 to 24.0 GHz to
5 reduce gain in the band.

33. (New) The UWB short-range radar according to claim 25,
wherein the antenna of the transmitting unit comprises an antenna
element surrounded by a cavity, and a resonant frequency of the
cavity is caused to fall within a range of 23.6 to 24.0 GHz to
10 reduce gain in the band.